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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

PHAM, THOMAS K

ART UNIT PAPER NUMBER

2121

DATE MAILED: 06/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/661,239	Applicant(s) BRANDT ET AL.	
	Examiner Thomas K. Pham	Art Unit 2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>4/3/06 & 12/23/05</u> | 6) <input type="checkbox"/> Other: _____ |

Response to Amendment

1. This is in response to the amendment filed 03/15/2006.
2. Applicant's amendment, with respect to the new issues of claims 1, 20, 24, 28 and 29, necessitated new grounds of rejection presented in this Office action.

Quotations of U.S. Code Title 35

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim Rejections - 35 USC § 103

7. Claims 1-8 and 11-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,957,348 (“Flowers”) in view of U.S. Patent No. 6,571,141 (“Brown”).

Regarding claim 1

Flowers teaches the invention including an automation security system, comprising: an asset component that defines one or more factory assets is taught as a network security system for monitoring network traffic for signs of malicious activity including a vulnerability detection system (VDS) that gathering information about the network resources (see abstract and C 3 L 30-40); an access component that defines one or more security attributes associated with the factory assets is taught as a rules database that defines one or more vulnerabilities associated with the network resources (see abstract and C 3 L 41-55).

Flowers does not specifically disclose a security component that regulates access to the factory assets based upon the one or more security attributes.

However, Brown teaches a security system for controlling access to motion control systems include restricting access to one or more API functions based on security attributes such as user profile, account and/or status of the motion control devices (see abstract and C 6 L 57-67).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the security access restriction of Brown with the system of Flowers because it would provide for the purpose of granting limited access to different level of users.

Regarding claim 20

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Flowers teaches the invention including an automation security system, comprising: one or more servers that manage a network interface between networked factory assets and other devices attempting access to the networked factory assets is taught as a network security system for monitoring network traffic for signs of malicious activity including a vulnerability detection system (VDS) that gathering information about the network resources (see abstract and C 3 L 30-40) a rules database that defines one or more vulnerabilities associated with the network resources (see abstract and C 3 L 41-55).

Flowers does not specifically disclose a security management module associated with the network interface for enforcing an enterprise wide policy and to manage security threats directed to the networked factory assets.

However, Brown teaches a security system for controlling access to motion control systems include restricting access to one or more API functions based on security attributes such as user profile, account and/or status of the motion control devices (see abstract and C 6 L 57-67).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the security access restriction of Brown with the system of Flowers because it would provide for the purpose of granting limited access to different level of users.

Regarding claim 24

Flowers teaches the invention including an automation security methodology, comprising: electronically analyzing one or more automation assets is taught as a network security system for monitoring network traffic for signs of malicious activity including a vulnerability detection system (VDS) that gathering information about the network resources (see abstract and C 3 L 30-

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40); programmatically modeling the automation assets in accordance with network security considerations is taught as a rules database that defines one or more vulnerabilities associated with the network resources (see abstract and C 3 L 41-55); and

Flower does not specifically disclose developing a security framework for an automation system based in part on the modeling of the automation assets and a network access type automatically.

However, Brown teaches a security system for controlling access to motion control systems including automatically restrict access to one or more API functions based on security attributes such as user profile, account and/or status of the motion control devices (see abstract and C 6 L 57-67).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the security access restriction of Brown with the system of Flowers because it would provide for the purpose of granting limited access to different level of users.

Regarding claim 28

Flowers teaches the invention including an automated security system for an industrial control environment, comprising: means for defining one or more security attributes associated with at least one network request; means for processing the one or more security attributes is taught as a rules database that defines one or more vulnerabilities associated with the network resources (see abstract and C 3 L 41-55); means for automatically determining which network devices require security resources is taught as a network security system for monitoring network traffic for signs of malicious activity including a vulnerability detection system (VDS) that gathering information about the network resources (see abstract and C 3 L 30-40).

Flowers does not specifically disclose controlling access to at least one of a network device and an automation component based in part on the one or more security attributes.

However, Brown teaches a security system for controlling access to motion control systems including automatically restrict access to one or more API functions based on security attributes such as user profile, account and/or status of the motion control devices (see abstract and C 6 L 57-67).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the security access restriction of Brown with the system of Flowers because it would provide for the purpose of granting limited access to different level of users.

Regarding claim 29

Flowers teaches the invention including a security schema for a factory automation system, comprising: a first data field that describes factory assets (see abstract and C 3 L 41-55); a second data field that describes security parameters for the factory assets; and a schema that associates the first and second data fields is taught as a network security system for monitoring network traffic for signs of malicious activity including a vulnerability detection system (VDS) that gathering information about the network resources (see abstract and C 3 L 30-40).

Flowers does not specifically disclose the schema employed to limit access to the factory assets based upon the security parameters.

However, Brown teaches a security system for controlling access to motion control systems including automatically restrict access to one or more API functions based on security attributes such as user profile, account and/or status of the motion control devices (see abstract and C 6 L 57-67).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the security access restriction of Brown with the system of Flowers because it would provide for the purpose of granting limited access to different level of users.

Regarding claim 2

Brown teaches the one or more or more security attributes including at least one of a role attribute, a time attribute, a location attribute, and an access type attribute (see C 10 L 33-40).

Regarding claim 3

Flowers teaches the security component is based on at least one of a formal threat analysis, a vulnerability analysis, a factory topology mapping and an attack tree analysis (see abstract).

Regarding claim 4

Flowers teaches the security component is based on at least one of automation and process control security, cryptography, and Authentication/Authorization/Accounting (AAA) (see abstract and C 2 L 21-27).

Regarding claim 5

Flowers teaches the asset component describes at least one of factory components and groupings, the factory components are at least one of sensors, actuators, controllers, I/O modules, communications modules, and human-machine interface (HMI) devices (see C 3 L 30-35, “servers 102-106”).

Regarding claim 6

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Flowers teaches the groupings include factory components that are grouped into at least one of machines, machines grouped into lines, and lines grouped into facilities (see C 3 L 30-35).

Regarding claim 7

Flowers teaches the groupings have associated severity attributes such as at least one of risk and security incident cost (see abstract).

Regarding claim 8

Flowers and Brown do not specifically teach an ISA S95 Model for Enterprise to Control System integration to integrate security aspects across or within respective groupings. “Official Notice” is taken that both the concept and advantages of providing an ISA S95 Model for Enterprise to Control System integration to integrate security aspects across or within respective groupings is well known and expected in the art. U.S. Patent Application Publication No. 2003/0014500 to Schleiss et al. discloses a preferred flow of communication between various process control and information technology systems are typically found within an enterprise defined by an ISA S95 model international standard (see paragraphs 7 and 8). It would have been obvious to one of ordinary skill in the art to include the ISA S95 model for Enterprise to Control system to Flowers because it would provide for interacting between production or process control systems, enterprise resource planning systems and manufacturing execution systems to facilitate the integration of these systems.

Regarding claim 11

Flowers teaches security parameters and policies that are developed for physical and electronic security for various component types (see C 3 L 41-51).

Regarding claim 12

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Flowers teaches the security parameters and policies further comprising at least one of security protection levels, identification entry capabilities, integrity algorithms, and privacy algorithms (see C 4 L 16-29).

Regarding claim 13

Flowers teaches the security component includes at least one of authentication software, virus detection, intrusion detection, authorization software, attack detection, protocol checker, and encryption software (see C 3 L 56-63).

Regarding claim 14

Flowers teaches the security component at least one of acts as an intermediary between an access system and one or more automation components, and facilitates communications between the access system and the one or more automation components (see C 3 L 12-29).

Regarding claim 15

Brown teaches the security attributes are specified as part of a network request to gain access to the one or more factory assets, the security attributes included in at least one of a group, set, subset, and class (see C 9 L 9-18).

Regarding claim 16

Brown teaches the security component employs at least one authentication procedure and an authorization procedure to process the network request (see C 9 L 66 to C 10 L 10)

Regarding claim 17

Brown teaches one or more security protocols including at least one of Internet Protocol Security (IPSec), Kerberos, Diffie-Hellman exchange, Internet Key Exchange (IKE), digital certificate, pre-shared key, and encrypted password, to process the network request (see C 9 lines 30-36).

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Regarding claim 18

Brown teaches at least one of an access key and a security switch to control network access to a device or network (see C 10 L 20-32, “security mask”).

Regarding claim 19

Brown teaches the access key further comprises at least one of time, location, batch, process, program, calendar, GPS (Global Positioning Information) to specify local and wireless network locations, to control access to the device or network (see C 10 L 33-40).

Regarding claim 21

Flowers teaches the security management module at least one of schedules audits, establishes a security policy, applies the policy from a single or distributed console, and generates reports that identify potential weaknesses in security (see C 3 L 12-29).

Regarding claim 22

Brown teaches the security management module provides an interface to at least one of add, delete and modify security rights of an individual, a group, or a device and distribute security information to various controllers and control devices (see C 9 L 39-47).

Regarding claim 23

Brown teaches further comprising at least one of: an authentication with the one or more servers to establish a secure link; a secure link to authenticate and authorize access to a requestor of the networked factory assets; and establishment of a secure session with the requestor if access is authorized (see C 10 L 34-40).

Regarding claim 25

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Brown teaches analyzing one or more security attributes to determine whether access should be granted to the one or more automation assets (see C 10 L 6-32).

Regarding claim 26

Brown teaches the one or more security attributes further comprise at least one of a role, an asset type, a location, a time, and an access type (see C 10 L 33-40).

Regarding claim 27

Brown teaches at least one of: determining whether to grant access to the one or more automation assets; granting access from the one or more automation assets; and granting access from a network device associated with the one or more automation assets (see C 10 L 6-32).

Regarding claim 30

Brown teaches the schema including at least one of an access role, an asset type, an access type, time information, address information, and location information (see C 10 L 33-40).

Regarding claim 31

Brown teaches a response schema to provide status to a requesting network device (see C 10 L 25-32, "ACCESSDENIED").

Regarding claim 32

Brown teaches the response schema including at least one of a status field, a time field, an access type field, an access location field, and a key field (see C 10 L 25-32, "defining the access rights").

Regarding claim 33

Brown teaches the response schema including an attachment field to indicate other security data follows the response schema (see C 10 L 25-32).

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8. Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,957,348 (“Flowers”) in view of U.S. Patent No. 6,571,141 (“Brown”) and further in view of U.S. Patent Application Publication 2002/0006790 A1 (“Blumenstock”).

Regarding claim 9

Flowers and Brown do not specifically teach a set of generic IT components and specifies parameters to assemble and configure the IT components to achieve flexible access to the one or more factory assets.

However, Blumenstock teaches a set of generic IT components for providing remote maintenance and/or diagnostic with a flexible access using an encryption device at transmitting server and a decryption device at a remote server (see paragraphs 14 and 15) for the purpose of preventing unauthorized penetration of a firewall to the automation system (see paragraph 8).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the flexible access of Blumenstock with the system of Flowers because it would provide for the purpose of preventing unauthorized penetration of a firewall to the automation system.

Regarding claim 10

Blumenstock teaches the IT components include at least one of switches with virtual local area network (VLAN) capability, routers with access list capability, firewalls, virtual private network (VPN) termination devices, intrusion detection systems, AAA servers, configuration tools, and monitoring tools (see paragraph 8, “firewall”).

Response to Arguments

9. Applicant's arguments with respect to claims 1-33 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner *Thomas Pham*; whose telephone number is (571) 272-3689, Monday - Thursday from 6:30 AM - 5:00 PM EST or contact Supervisor *Mr. Anthony Knight* at (571) 272-3687.

Any response to this office action should be mailed to: **Commissioner for Patents, P.O. Box 1450, Alexandria VA 22313-1450**. Responses may also be faxed to the **official fax number (571) 273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thomas Pham
Patent Examiner

A handwritten signature in black ink, appearing to read 'Thompson', with a long horizontal flourish extending to the right.

May 28, 2006